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666 SMOKE INSECTICIDE

- Communist China -

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/Following is a translation of an article by Yao Hao-jen in the Chinese-language newspaper Ta Kung Pao, Peiping, 13 May 1960, page 3./

A. Effective Constituents of 666 Smoke Insecticide

The 666 smoke insecticide consists of three parts: (1) the initial insect-killing 666 powder, (2) auxilliary combustion agent (generally potassium chlorate, potassium nitrate, sodium nitrate, etc.); and (3) fuel (such as white sugar, Ting-fen, Wu-lo-tou-pin /this is a translation of a Russian term/, thiocarbamide, saw dust, etc.). White sugar and Ting-fen may be replaced by easily combustible, cheap, and abundant organic materials. The above mentioned raw materials are then ground separately and finally blended according to the proper proportions into 666 smoke insecticide.

B. Characteristics of 666 Smoke Insecticide

1. Upon being heated, 666 smoke insecticide develops into a form of smoke which has a surface area 100,000 times the original compound. The use of a limited quantity of the insecticide can kill insects in a large area.

2. The killing of insects is done by the smoke of the insecticide. Since smoke has the ability to fill any space, therefore, 666 fume insecticide is more penetrating and thorough than any powder or spray insecticides.

3. After being made into smoke, 666 smoke insecticide has the ability to penetrate into insect's respiratory system and kill it by suffocation in addition to the insecticide's stomach-poison and contact killing actions.

4. No large amount of water and equipment are needed; uses less insecticide; convenient.

C. The Preparation of 666 Smoke Insecticide

Two methods are introduced below.

1. Dry method.

raw material %	sample number 1	2	3
original 666 powder	60	56.4	73
potassium chlorate	23	16.5	16
Wu-lo-tou-pin		6.1	
thio-carbamide		2.0	
white sugar	7		11
clay		19	
ammonium chloride	10		

Based on the prescriptions given in the table, the raw materials are first crushed, then sifted through No. 80 screen, and finally blended into the final product.

2. Wet method.

raw material	%
original 666 powder	40
potassium chlorate	3
potassium nitrate	20
clay	15
saw dust	12
coal powder	5

First crush the raw materials, then dissolve the auxiliary combustion agent in water; the next step is to blend the original 666 powder and fuel into this solution; when dry, this is the final product.

D. The Use of 666 Smoke Insecticide-Native Insecticide Mixture

The mixture of 666 smoke insecticide and native farm insecticides yields good results. The prescription is as follows: 20 percent of 6 percent wet 666 powder, 20 percent aged astemisia powder (or southernwood or wormwood powder), 10 percent sulfur powder, 10 percent realgar powder, and 40 percent native saltpeter powder. Wet finishing process may also be used.

E. The Applications of 666 Fume Insecticide

1. Outdoor.

a. Time: normally, 4-9 A.M. and 5-7 P.M.; smoke can be used on windless sunny days and should not be used at noon or midnight in fine weather or in foggy, cloudy, gloomy, humid weather with tendency to rain.

b. Wind strength: wind velocity should be less than 1.5 meters per second when smoke is used. The most suitable wind

velocity is from 0.3 to 1.0 meters per second. If wind velocity is less than 0.3 meters per second, smoke has a tendency to stay in a small area; or if it is greater than 1.0 meters per second, the smoke will be easily blown away, and the final result will be poor.

c. Wind direction: ignition should take place at the right or left upper corner of the wind direction.

d. Results from level ground smoke application are less satisfactory. Wind velocity on hill slopes facing wind is greater than on the other side of the hills; therefore, fuming should be done at the sheltered side.

2. Indoor.

Doors and windows should be closed and foods, kitchen tools, and dyed clothes (especially silk) should be properly put away; 666 fume insecticide should be put at an elevated location (bricks may be used) before ignition. When the insecticide is ignited with matches, personnel should leave the room quickly and close the door tightly; 2 to 3 hours after ignition, doors and windows can be opened to let air in and no person should be allowed to enter the room unless it has been freely ventilated.

F. Precautions

1. Since 666 insecticide fume is very toxic, a face mask should be used.

2. 666 fume insecticide should not be used in the vicinity of places where bees or fish are raised. If the use of the insecticide can not be avoided, precautions and protective measures must be taken prior to the application.

3. Since 666 fume insecticide contains easily combustible material, special fire prevention precautions must be taken during the process of making, storage, transportation, and application.

4. Since 666 fume insecticide has the tendency to pick up moisture, dry storage is essential. Wet insecticide makes ignition and combustion difficult. If wet, let the wind dry it; don't bake it.

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